REMARKS

Claims 1-16 are pending in this application. Claims 1 and 15 are independent claims. In view of the following remarks, favorable reconsideration of the objections and rejections is kindly requested.

Initially, Applicants appreciate the Examiner's acknowledgment that all certified copies pertaining to foreign priority claimed under 35 U.S.C. § 119 have been received and the indication that the references submitted in the Information Disclosure Statement filed on February 25, 2004 have been considered.

In addition, Applicants note that the Examiner has not indicated whether the drawings filed on February 25, 2004 have been accepted or objected to by the Examiner. Thus, Applicants will assume that the drawings are accepted, unless indicated otherwise in the next Patent Office communication.

Specification Objections

The Specification stands objected to as allegedly failing to provide proper antecedent basis for the subject claimed matter under 37 C.F.R. §1.75(d)(1). Applicants respectfully traverse this objection.

The Examiner asserts "[t]he specification does not provide support for the surface of the nanocrystal being oxidized." Action, p. 2. Applicants disagree. Initially, Applicants remind the Examiner that original claims constitute a clear disclosure of subject matter, as set forth in MPEP §608.01(l).

Moreover, in an example embodiment of the present invention, some of the organic ligands on the nanocrystal surface are removed by the treatment of a reducing agent. During the oxidation-reduction reaction, the exposed metal on the surface is converted to a metal

oxide by reacting oxygen derived from atmospheric air. See paragraph [0024] – [0025]. Consequently, some portions of the surface of the nanocrystals are reduced while others are oxidized.

As such, Applicants submit that the Specification does provide support for the surface of the nanocrystal being oxidized.

Reconsideration and withdrawal of the rejection is kindly requested.

35 U.S.C. § 112, Second Paragraph

Claim 4 stands rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

By this Amendment, Applicants submit that claim 4 has been amended to exclude the term language "such as."

Withdrawal of the rejection is respectfully requested.

35 U.S.C. § 102(e) Rejection – Dutta

Claims 1-4, 9 and 11-15 stand rejected under 35 U.S.C. §102(e) as allegedly being anticipated by Dutta et al. (hereinafter "Dutta"), U.S. Patent No. 6,906,339. Applicants respectfully traverse this rejection.

As referenced by the Examiner, Dutta, col. 4, lines 29-62, teaches a "hydrogen passivating element may be provided by using a hydrogen containing reactant, such as an ammonia compound, during the formation of nanoparticles." Further,

> The excess passivating element in the solution, such as sulfur, then repassivates the surface of the etched nanoparticles. By selecting an appropriate type and amount of etching medium, the large nanoparticles can be automatically etched down to a uniform smaller size. If the acid concentration [in] the solution exceeds the desired amount then the nanoparticles are completely dissolved.
>
> Dutta, col. 6, lines 56-62 (emphasis added).

Thus, rather than adjusting the electronic state of the nanocrystal surface as a reducing agent functions, the "hydrogen containing reactant" provides an element which reduces the physical surface of the nanocrystals by passivation by removing a portion of the surface.

As such, Applicants submit that Dutta fails to anticipate or suggest "surface-treating the semiconductor nanocrystals with a reducing agent" as recited by independent claim 1.

Reconsideration and withdrawal of the rejection to independent claim 1 and claims 2-4, 9 and 11, at least by virtue of their dependency on independent claim 1, is respectfully requested.

Similarly, Applicants submit that Dutta also fails to teach a reduction reaction.

Accordingly, Applicants submit that Dutta also fails to anticipate or suggest "a chemically reduced or oxidized surface" as recited by independent claim 15.

Reconsideration and withdrawal of the rejection to independent claim 15 is respectfully requested.

35 U.S.C. § 102(e) Rejection – Simpson

Claims 1, 3, 4, 10-13 and 15 stand rejected under 35 U.S.C. §102(e) as allegedly being anticipated by Simpson et al. (hereinafter "Simpson"), U.S. Patent No. 6,853,669. Applicants respectfully traverse this rejection.

Simpson, directed to a laser with nanocrystals disposed in a laser cavity, teaches hydrogen directly bound to the silicon surface wherein "[h]aving hydrogen in the sample near

the nanoparticles can increase the luminescence, likely by chemically bonding at the Si/SiO_2 interface..." Simpson, col. 16, lines 22-25. Thus, Simpson teaches hydrogen altering the nanocrystal and not the ligands bound to the exposed metal on the surface of the nanocrystals.

As such, Applicants submit that Simpson fails to anticipate or suggest "surface-treating the semiconductor nanocrystals with a reducing agent" as recited by independent claim 1.

Reconsideration and withdrawal of the rejection to independent claim 1 and claims 3, 4, 10-13, at least by virtue of their dependency on independent claim 1, is respectfully requested.

Similarly, Applicants submit that Simpson also fails to anticipate or suggest "a chemically reduced or oxidized surface" as recited by independent claim 15.

Reconsideration and withdrawal of the rejection to independent claim 15 is respectfully requested.

35 U.S.C. § 103(a) Rejection – Dutta and Rockenberger

Claims 5-7 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Dutta in view of Rockenberger et al. (hereinafter "Rockenberger"), U.S. Patent No. 6,878,184. Applicants respectfully traverse this rejection.

Applicants submit that the Examiner has not applied Rockenberger in a manner which would suggest or teach the above-noted deficiencies of Dutta.

As such, Applicants submit that Dutta in view of Rockenberger fails to teach or suggest "surface-treating the semiconductor nanocrystals with a reducing agent" as recited by independent claim 1.

Reconsideration and withdrawal of the rejection to claims 5-7, at least by virtue of their dependency on independent claim 1, is respectfully requested.

35 U.S.C. § 103(a) Rejection – Dutta

Claim 8 stands rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Dutta. Applicants respectfully traverse this rejection.

In view of the above remarks regarding independent claim 1, Applicants submit that Dutta fails to teach or suggest a reducing agent.

As such, Applicants submit that Dutta fails to teach or suggest "surface-treating the semiconductor nanocrystals with a reducing agent" as recited in independent claim 1.

Reconsideration and withdrawal of the rejection to claim 8, at least by virtue of its dependency on claim 1, is kindly requested.

CONCLUSION

Accordingly, in view of the above amendments and remarks, reconsideration of the objections and rejections and allowance of each of claims 1-16 in connection with the present application is earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John A. Castellano at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY, & PIERCE, P.L.C.

By _____

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